

Advancing Wireless Home Networking

Name: Naresh Baliga

Title: VP of Product Marketing

Company: ShareWave, Inc.

Agenda

- **What is ShareWave?**
- **Market/Application Drivers for Wireless in the Home**
- **Standards Efforts**
- **ShareWave Products Update**
- **Demonstration**

What is ShareWave?

✍ **ShareWave provides semiconductors for multimedia-capable wireless home networks.**

✍ **ShareWave's technology is the ideal solution for the home because it's multimedia-capable and consumer-friendly.**

ShareWave Technology

Network Controller Systems delivering wireless protocols, & QoS services

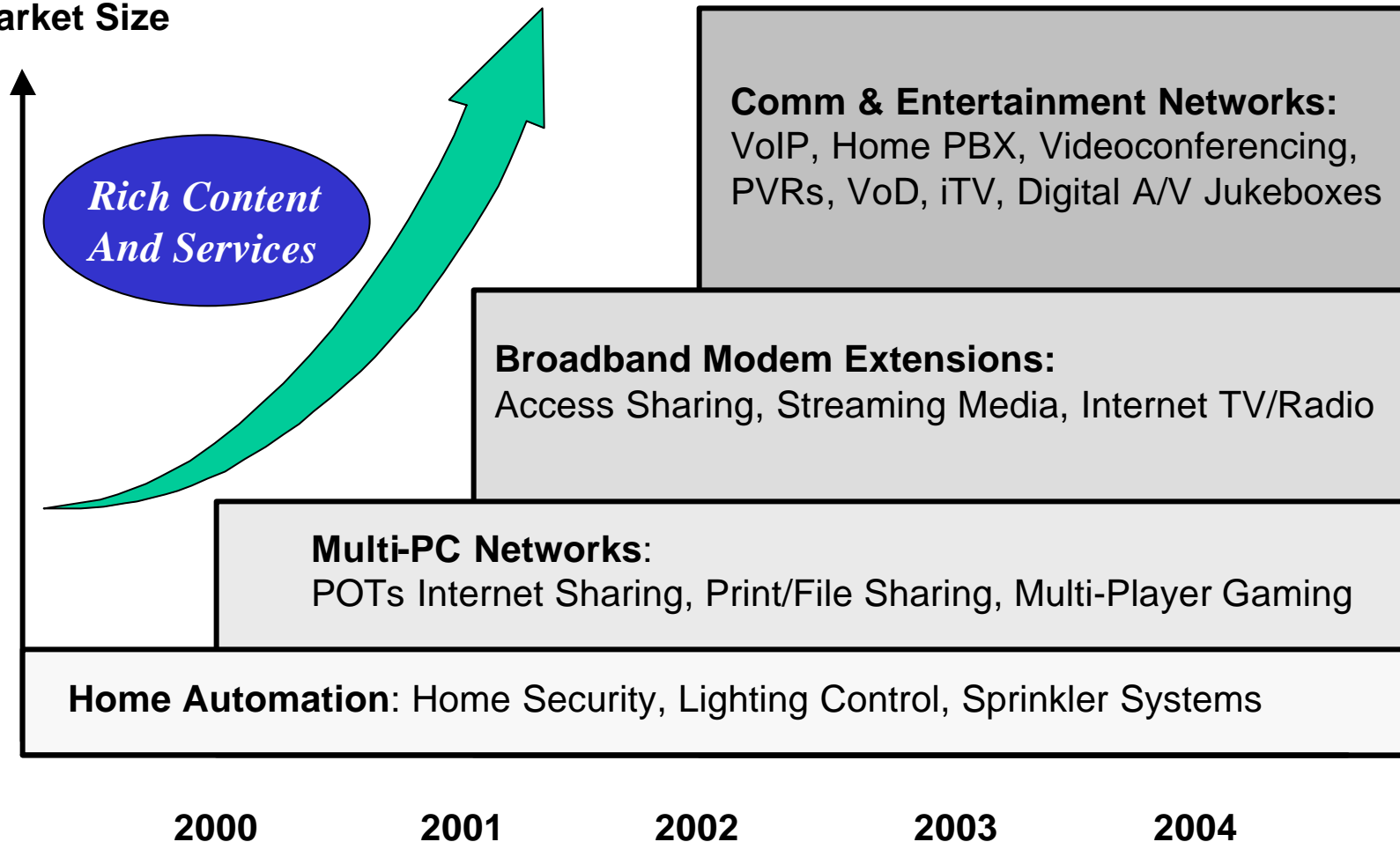
- ? Core technology can work with multiple PHYs

Standards based: “Embraces and Extends” 802.11

- ? Compliant with 802.11b and 802.11a
- ? Extends 802.11 for Quality of Service (QoS) and Multimedia
- ? Addresses ease of use and reliability issues for the home market

Home Networking Market Evolution

Capabilities &
Market Size



Market Drivers

– Standards

- Wi-Fi, 802.11e (QoS extension)

– Broadband deployment

- DSL, Cable modems; Residential Gateways
- Broadband services: streaming media, voice, etc.

– Price/performance

- Higher rate PHYs will emerge in 2001 (cost-effective in 2002)

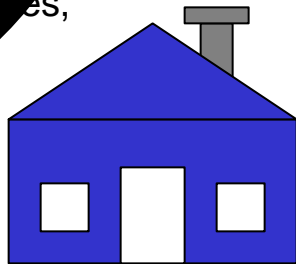
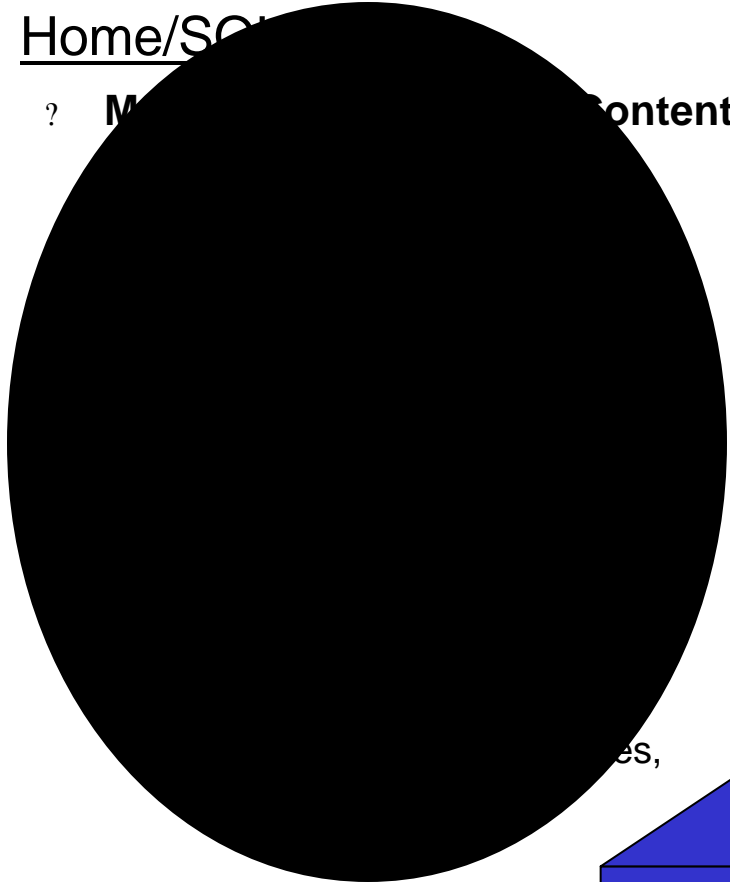
– Higher levels of integration

- MAC/PHY integration in NIC market
- Multi-LAN integration in gateway market
- LAN/WAN integration in broadband modem market

Networking Factors: Home vs. Enterprise

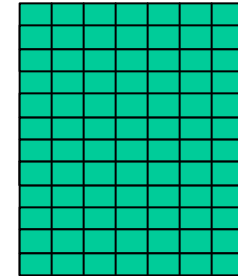
Home/SOHO

- ? **Managed Content**



Enterprise

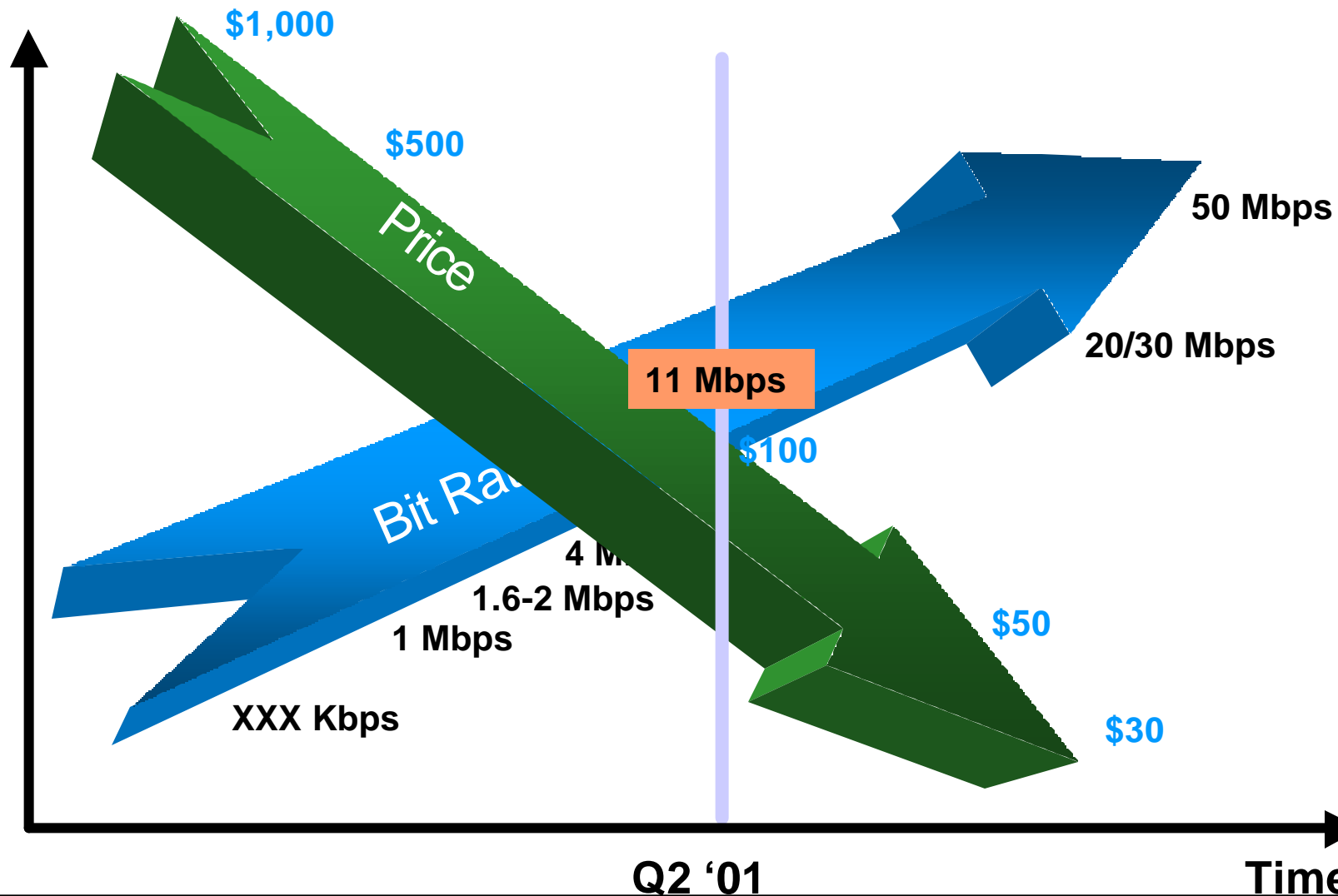
- ? **Traffic Primarily Data**
 - File transfer, Print, Email, HTML
- ? **MIS Managed Complexity**
 - Legacy Networking Infrastructure
 - Expandable Coverage Area
 - ✍ Campus-wide access (roaming)
- ? **Mainly PCs and Printers**
- ? **Controlled Environment for Interference**



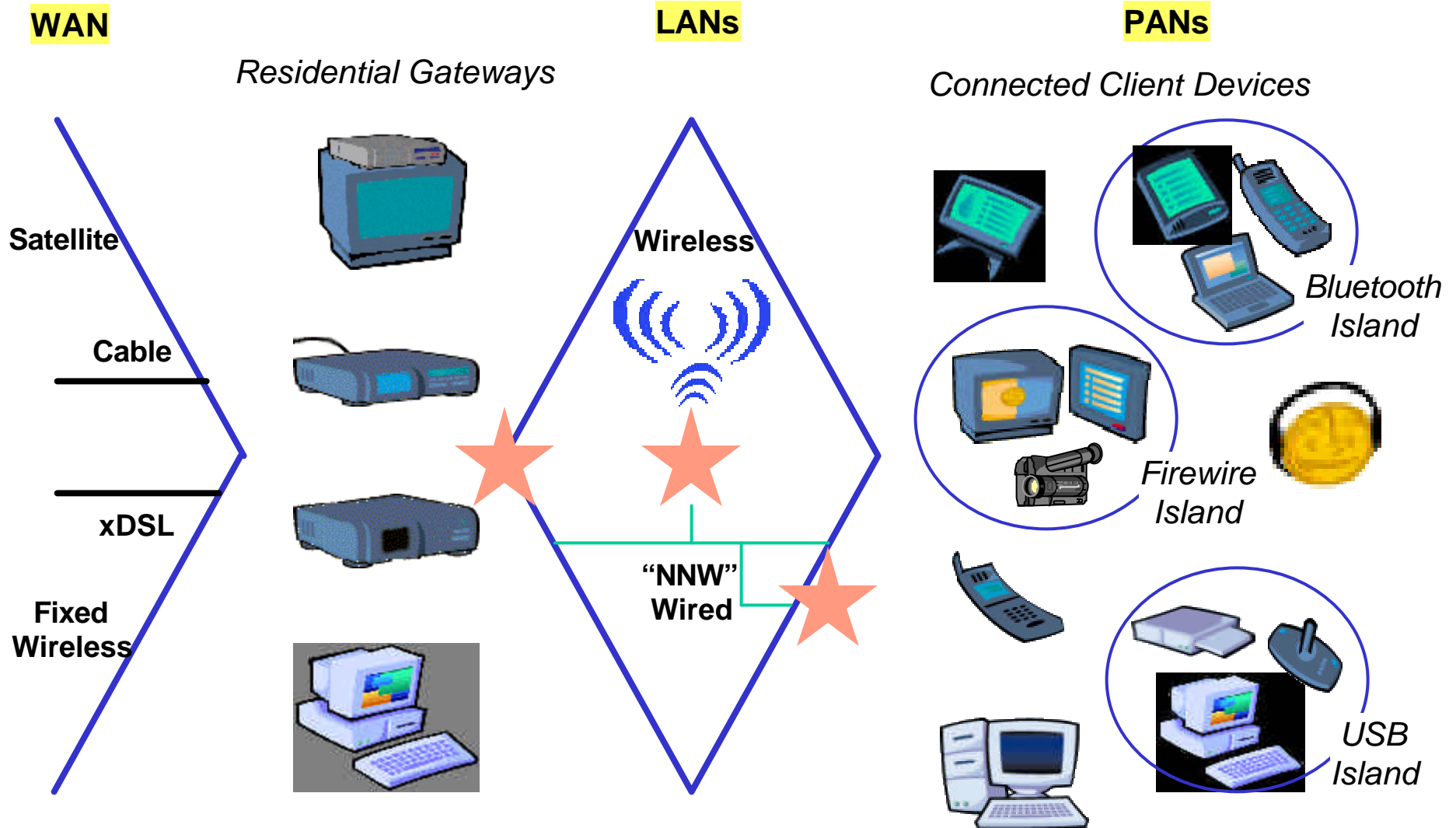
Why Wireless?

- Easy to Install and Use
- Easy to Reconfigure or Relocate
- Extends Throughout the Home and Yard
- Supports Mobile Devices
- International
- Declining Cost and Increasing Performance
- Leverages commercial usage (Wi-Fi)

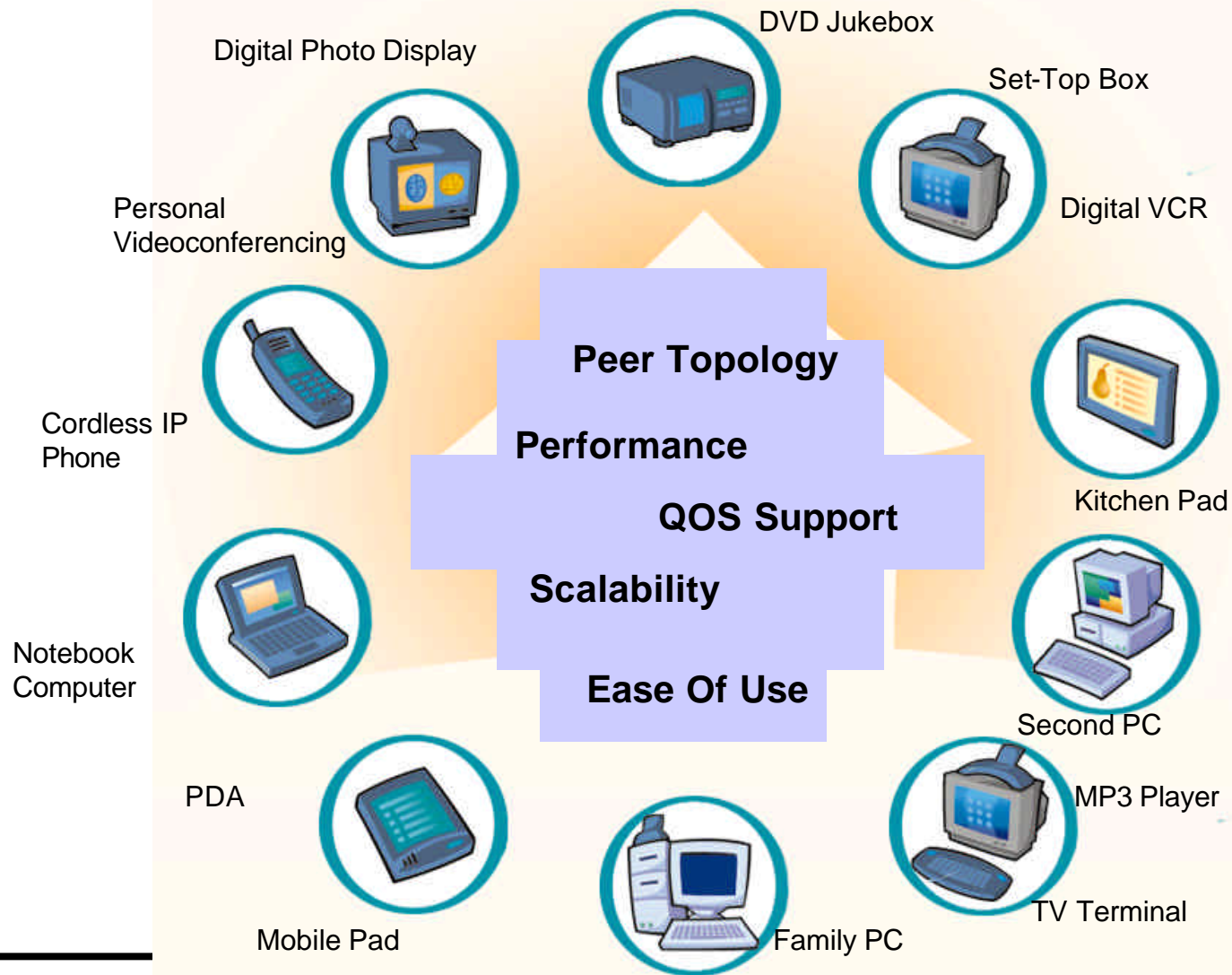
Bandwidth & Wireless Cost



Home Networking Infrastructure



Underlying Network Requirements

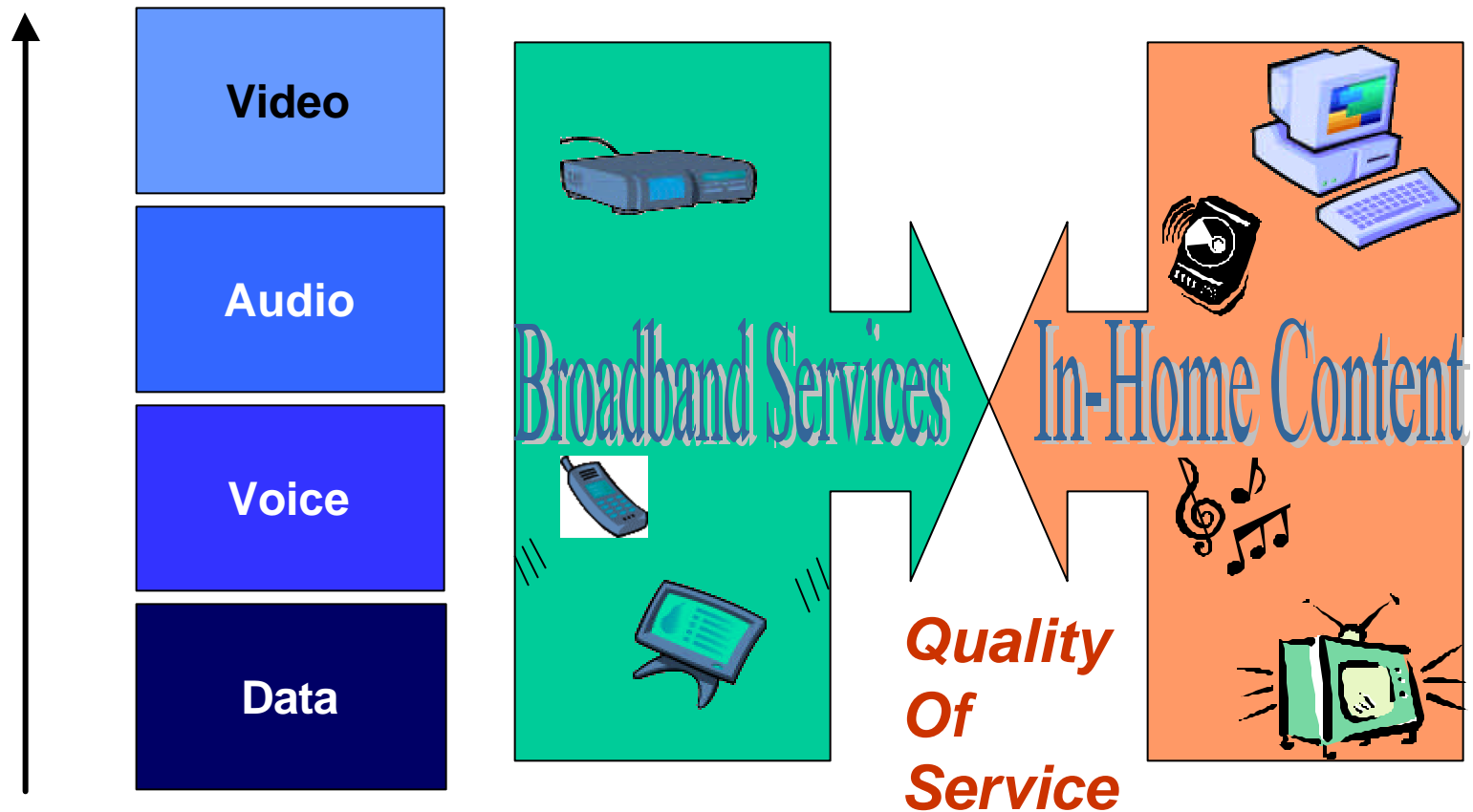


Example Network Data Requirements

Service	Description	Low (bps)	Med (bps)	High (bps)
Voice	Up to 4 lines at 64 kbps with guaranteed latency	256k	256k	256k
Data	ftp, asynchronous traffic	1M	1M	3M
IP streaming	Multiple audio/video streams (streaming MP3, MPEG)	500k	1M	2M
Video	MPEG2 SDTV (up to 3 streams @ 6Mbps) with guaranteed bandwidth	-	6M	20M
Internal traffic	Printer/file sharing, gaming, intercom, video monitor, digital audio, store & forward, etc.	250k	500k	2M
TOTAL	Estimated Home network capacity	2M	8M	27M

Networking Hierarchy of Needs

Increasing Bandwidth, QOS, and Isochronous Network Needs

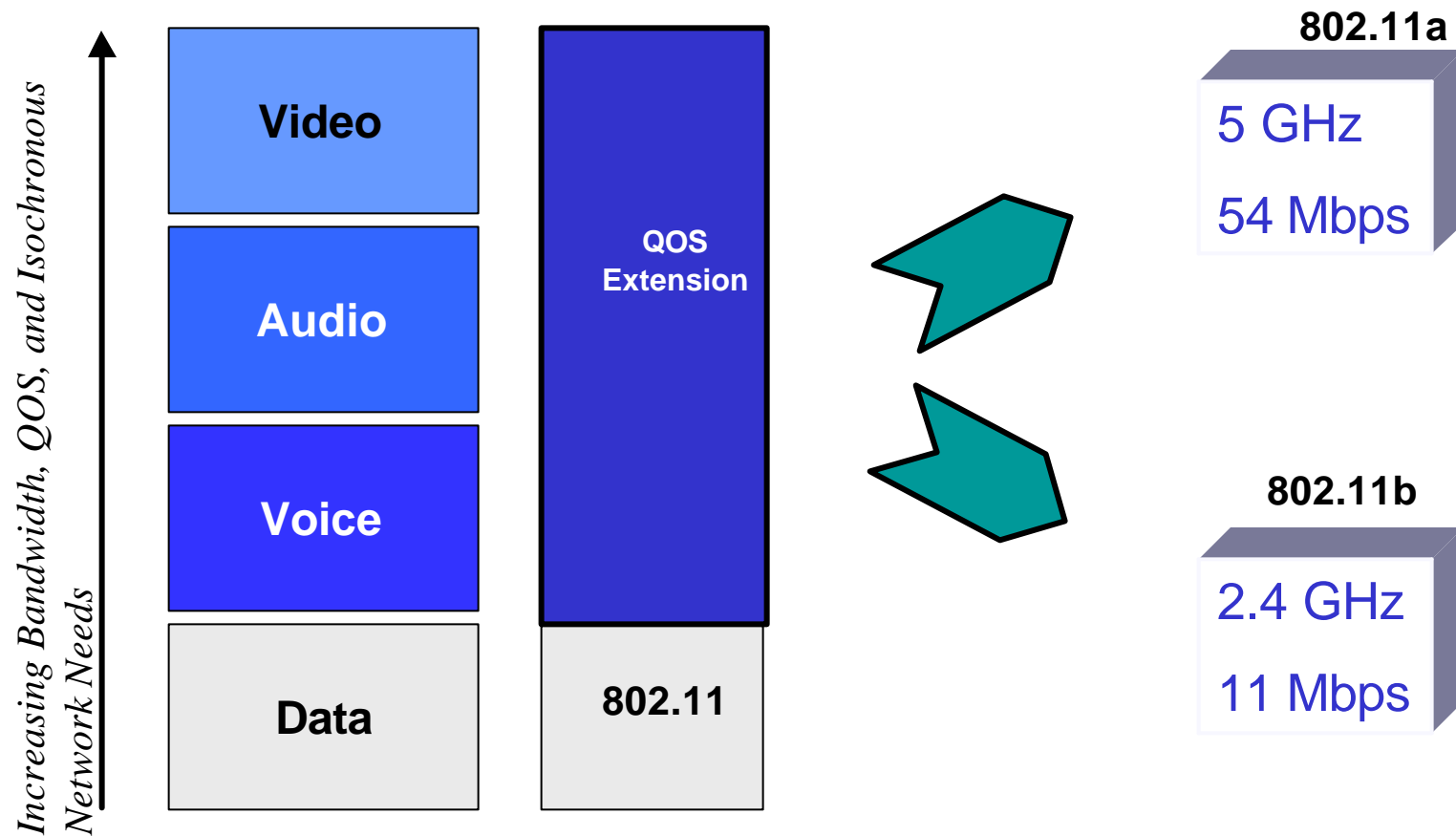


Multimedia Support Requirements

	Mobility	QoS	High Effective Speed
POTS Data	X		
Broadband Data	X		X
Voice	X	X	
Audio	X	X	X
Video	X	X	X

ShareWave's Expertise

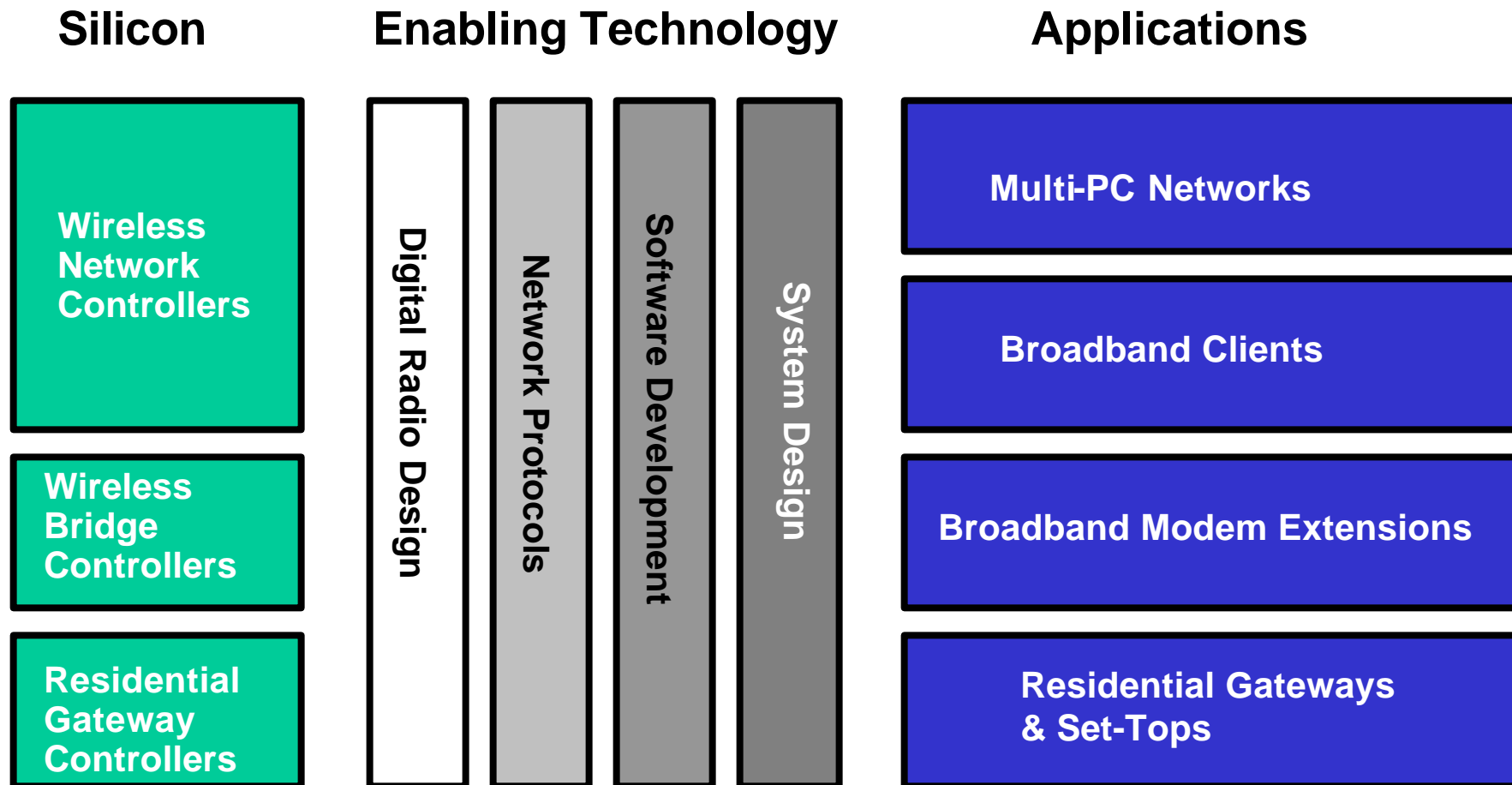
802.11 QoS Extension Standard



802.11e Standards Chronology/Update

- IEEE working group TGe since March '00
- Requirements document approved in July '00
- Baseline document approved. Key elements for QoS & Security extensions
- Cross-industry effort on baseline proposal
 - 802.11e is first universal WLAN standard: home, business, public areas
 - Draft specification process underway

ShareWave Products: Solution Enabling



ShareWave Products

	NIC Solutions	Bridge and Gateway Solutions
External	<ul style="list-style-type: none">•SWN2110 (USB)•SWN2120 (PCMCIA)	<ul style="list-style-type: none">•SWB2510 (10BT)
Internal	<ul style="list-style-type: none">•SWN2110 (PCI)	<ul style="list-style-type: none">•SWG2710 (RG)



Desktop PCs

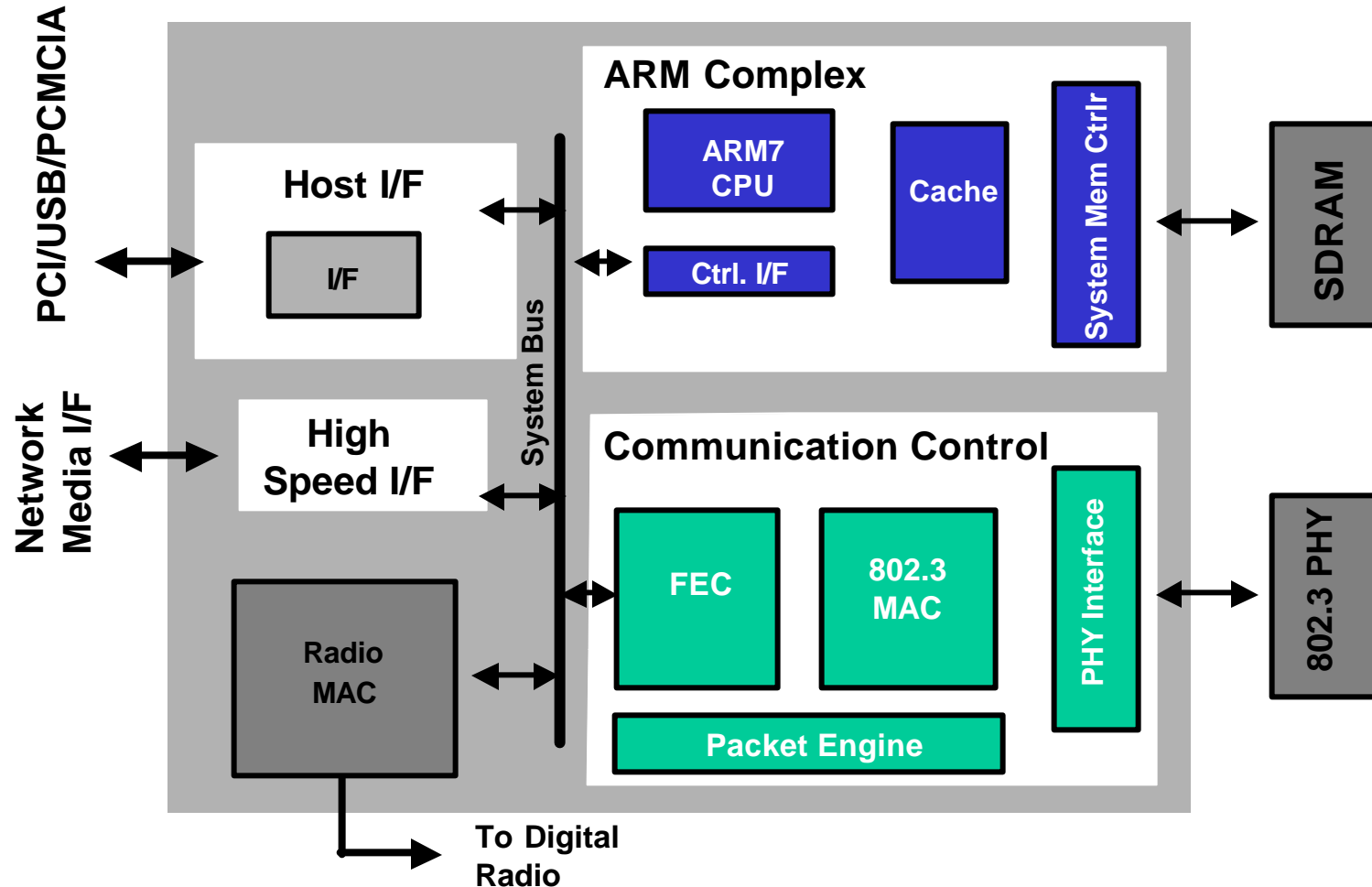


Notebook PCs



Broadband

Generic Controller Block Diagram



Technology Requirements Summary

MAC	PHY	Feature Requirement	Purpose
X		Forward Error Correction (FEC)	Corrects corrupted lossy data (isochronous – video/audio) to ensure QOS.
X		Selectable Retransmission	Ensures non-isochronous data types are delivered without loss.
X		Dynamic Channel Switching	Automatically shifts subnet to channel with least interference without user interaction.
X		Dynamic Channel Monitoring	Continuously monitors in-channel BER to ensure highest performance and aid in user antenna placement.
X		Hidden Node Support	Extending range/coverage of deployed subnet
X	X	Co-location of Subnets	Operation in overlapping deployment in MDUs
X	X	Dynamic Power Xmit Control	Dynamically adjusts radio output to optimal level as conditions change as well as low power consumption control.
	X	Margin	Overcome signal loss due to stationary obstacles (walls, ceilings)
	X	Fade Margin	Overcome signal loss due to moving obstacles (People moving, etc)
	X	Antenna Diversity	Overcome Multipath interference

Product Deployment Status

- **Partner Relationships Announced To Date**
 - Netgear
 - Matsushita (Panasonic)
 - Radiata/Cisco
 - Kinaare
- **Shipping to Customers Today**
- **Consumer Products Available Q1**

Summary

- **Wireless LANs are moving mainstream**
 - 802.11 ... Wi-Fi momentum ... one standard everywhere
 - QoS extensions for multimedia
 - Cheaper and faster products
- **ShareWave provides unique benefits**
 - High performance multimedia wireless networking
 - 802.11 based products (2.4Ghz and 5Ghz)

Thank You!

*Please Visit Our Demonstration in
the Exhibit Area*



ShareWave™